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(54) PRODUCTION OF SINTERED BODY OF CUBIC BORON NITRIDE COMBINING ALUMINA AND TITANIUM NITRIDE

(57)Abstract:

PURPOSE: To form a sintered body of cubic boron nitride provided with high hardness and strong resistance to oxidation by sintering a powder mixture composed of a specific ratio of cubic BN, Al₂O₃, TiN, Al, Si under specific temp. and pressure conditions.

CONSTITUTION: A mixture composed, by weight %, of 50W70 cubic BN powder, 20W10 Al₂O₃ powder, 18W8 TiN powder, 8W10 Al powder, and 4W2 Si powder is packed in a vessel and is packed in a chamber for generating high temp. and high pressure. A pressure of 47,000W50,000kg/cm² is applied on the powder and the temp. is heated up to 1,500W1,600°C by gradual heating and is held at said temp. for 10W60min. The heating is stopped with the pressure held as it is and the chamber inside is cooled to decrease the temp. therein down to 300°C. The pressure held in the above-mentioned state is returned to atmospheric pressure and the sintered body is removed from the inside of the chamber. The titled sintered body having excellent performance as a cutting tool is thus obtd.

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